

MISSOURI DEPARTMENT OF CONSERVATION



July/August 2016

Xplor

A PEEK AT
POND LIFE

YOU'RE WELCOME TO STAY FOR DINNER

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Exploring the rock arches of **Pickle Springs Natural Area** offers a shady way to spend a hot summer day.

📷 by David Stonner



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ON THE COVER

Common Snapping Turtle

by Noppadol Paothong

GET OUT!

DON'T MISS THE CHANCE TO DISCOVER NATURE AT THESE FUN EVENTS



Acorns

1

Take an imaginary journey through forests, streams, and other magical places at **NATURE NUTS STORY TIME** and then participate in a hands-on nature activity. Ages 3–8. Discovery Center in Kansas City. July 2. Choose 10–11 a.m., 11 a.m.–noon, or 1–2 p.m. Call 816-759-7300 for more info.



3

Families are welcome to **DISCOVER NATURE — FISHING: FROGGING CLINIC** at Ted Shanks Conservation Area. Bring flashlights or headlamps, footwear that can get wet and muddy, and fishing permits for those 16 and older. July 8, 6 p.m. Call 573-248-2530 for more info.

2

Discover the cool things that live in the water at **AQUATIC ADVENTURE** and learn how an aquatic food chain works. St. Louis Regional Office in St. Charles. July 7, 9–11 a.m. Register at 636-441-4554.

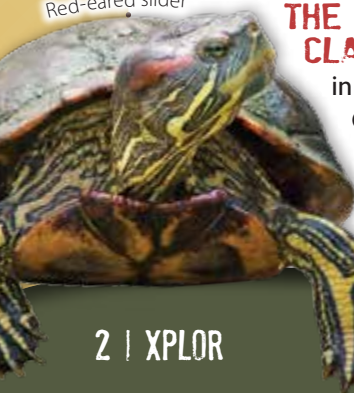


Bluegill

4

Red-eared slider

Join us for a 2½-mile levee hike to view **REPTILES OF THE MARAIS TEMPS CLAIR** Conservation Area in eastern St. Charles County. August 20, 8–11 a.m. Register at 636-441-4554.



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5



Bumblebee

Bees, flies, hummingbirds, and more — **THE BUZZ ABOUT POLLINATORS** shows you how to help these important, busy little beasts. Cape Girardeau Conservation Nature Center. August 27, 9 a.m.–noon. Call 573-290-5218 for more info.



Monarch caterpillar on butterfly milkweed

It's hot outside in July and August, but there are still lots of cool things to do! Here are just a few.

JULY 1

Blackberries are ripening — get out and pick some!

JULY 21

Listen for katydids singing.

JULY 30

Watch for young hummingbirds at feeders.

AUGUST 12

The Perseid meteor shower peaks. Grab a blanket and sleep under the stars to catch the show.

AUGUST 17

Snapping turtle eggs begin hatching.

AUGUST 29

Whitetail bucks start rubbing velvet off their antlers. Look for their rubs on small trees.

- ① Around and around my coil goes.
- ② "Danger to you!" red color shows.
- ③ Threaten me, and I'll ball up my "fist."
- ④ Then I'll hide my head while you tangle with this.



WHAT IS IT?

DON'T KNOW?
Jump to Page 20 to find out.

Into the WILD

rotting log

Trees, like all living things, eventually die. But don't despair. Fallen trees create habitat for all kinds of wild creatures. Check out a rotting log, and you'll see what we mean.

LOOK

When nibbling on nuts, squirrels are messier than your baby brother eating spaghetti. Their picnic sites are usually marked by piles of half-eaten acorns, discarded hickory nut shells, and other food scraps.



Gray squirrel



Spotted salamander

LOOK

Roll over a rotting log, and you might find a sleepy salamander snoozing underneath. These harmless amphibians spend most of their time hiding under logs, rocks, or in burrows. They crawl out at night, especially after a rain, to eat insects, spiders, and worms. When you're done looking at the little guy, be sure to gently roll the log back into place.



Run your hand over a patch of moss, and you'll notice that the tiny plants feel as soft as velvet. There are many kinds of mosses, but all of them like to grow in damp, shady places, such as on the side of a rotting log.

LOOK

Turkey tail mushrooms are one of the most common fungi in Missouri, found on nearly every rotting log in the woods. Like other mushrooms, turkey tails are part of nature's recycling crew. They break down dead logs and turn them into nutrients that other living things use to grow. Can you guess why they're called turkey tail mushrooms?



Take a Closer Look

Dig under a rotting log, and you'll likely find millipedes and **centipedes** churning through the soil. How do you tell them apart? Millipedes have two pairs of legs on each body segment. Centipedes have only one pair. Also — and this is important — millipedes are harmless, but centipedes can bite.

Heads Up!

Poison ivy causes an itchy rash. Learn to identify the plant so you can avoid touching it. Look for leaves in groups of three. The center leaf is always on a stalk that's longer than the stalks of the other two leaves.



What Happened Here?

Big black **carpenter ants** build tunnels in rotting trees. The ants eat insects and plant juices, not wood. So what happens to all the timber they excavate? They carry away little piles of sawdust and dump it outside their tunnels.

Did You Know?

Hercules beetles make human weight lifters look like wimps. The brawny bugs can bench press 850 times their own weight. To do the same, an average-sized 10-year-old would have to lift nearly 60,000 pounds!



POND PAD

A detailed illustration of a pond ecosystem. In the upper left, a leopard frog tadpole with dark spots is partially obscured by the large, 3D, light blue title letters. To the right, a white fragrant water lily is in bloom among green lily pads. In the foreground, a large green darner dragonfly is perched on a lily pad, its wings spread, showing intricate veining. The background shows more lily pads and reeds in a pond setting.

Leopard frog tadpole

Fragrant water lily

Green darner dragonfly

LIFE ABOVE AND BELOW

by Bonnie Chasteen
art by David Besenger

Lots of cool critters hang around a pond. But don't let the peaceful water and pretty flowers fool you. This scene is anything but chill. From the agile dragonflies that buzz the air to sneaky snapping turtles lurking below, the pond is a combat zone where everything is lunch, and everybody is hungry — all the time. Let's dive in and see who's eating who.



Bottoms up!

Is this big bird
drinking or eating?

Turn the page to find out.

Great blue heron

Leopard frog

A dragonfly zips over the lily pad, and a leopard frog shoots out its long, sticky tongue to catch it. When the frog strikes or swims, its lower eyelid, called a “haw,” slides up to protect its eyes — kind of like when you wear swim goggles in the pool.

Mosquito larvae

Golden shiner

Great blue heron

Largemouth bass

It's lunchtime under the lily pad!

Tiny mosquito larvae cling to the leaf. They breathe with their bottoms, which snorkel up into the air. Their hungry mouths hang down, eating microorganisms. Minnows cruise by, snapping the larvae up like hotdogs at a picnic.


With its scissor-like bill, the great blue heron can snag a fish mid-swim. Like the leopard frog, the heron has a special protective eyelid that slides up when it plunges its head underwater.



To the left, a dragonfly nymph shoots out its lower jaw to harpoon a passing minnow. This fierce predator detects its victims by movement and eats any water animal smaller than itself. The dragonfly nymph can live for years underwater, where it will eat lots of water critters before becoming an adult dragonfly.

To the right, the water scorpion has a long, pointed tail, but it doesn't sting. Instead, it uses its powerful forearms to catch and hold prey like this chubby tadpole. Water scorpions suck the juices out of their prey with their sharp, hollow beaks.

Both dragonfly nymphs and water scorpions are the terrors of small pond life, but they help humans by controlling lots of mosquito larvae.

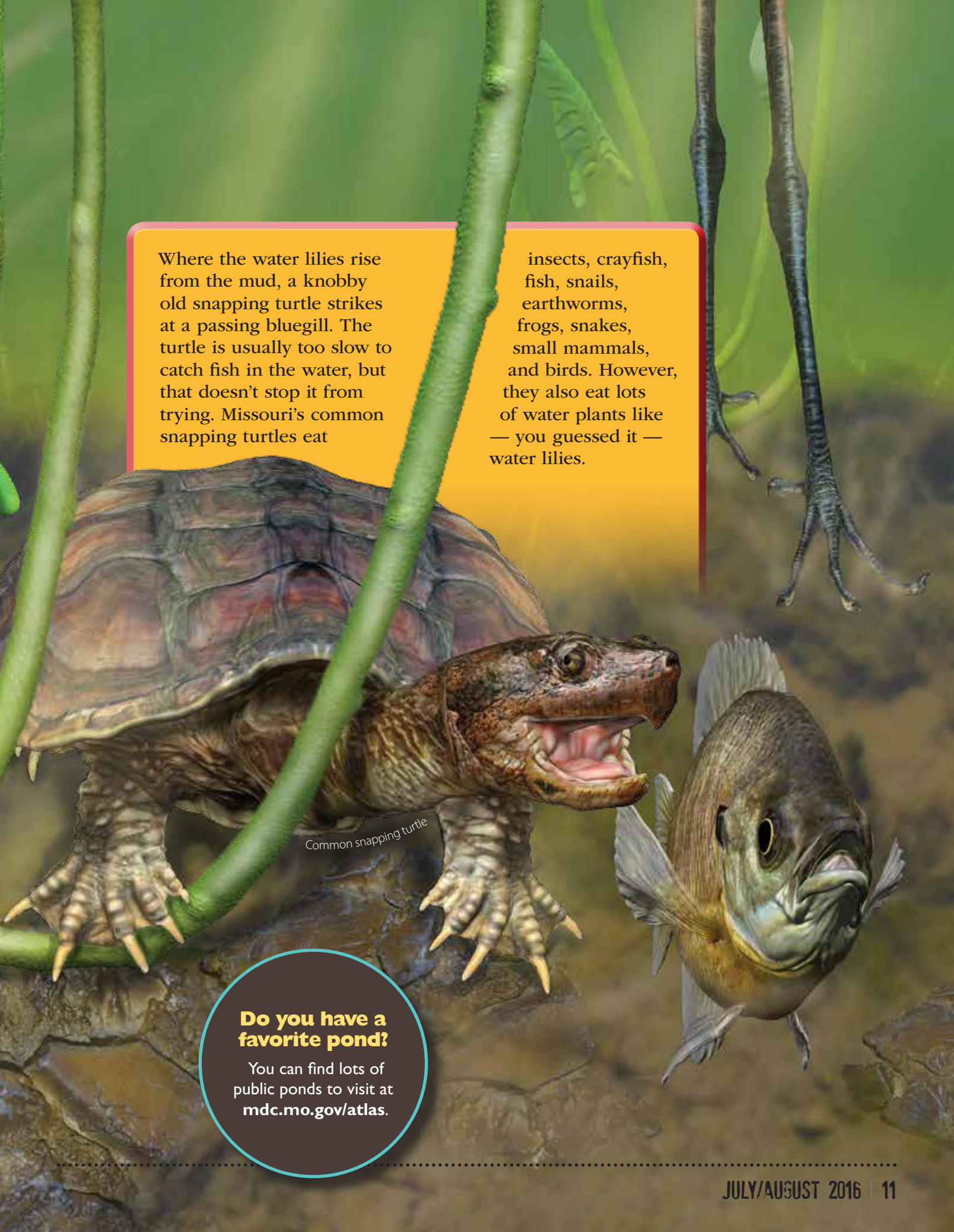


A couple of hungry bluegill eye a wary crayfish. Bluegill have small mouths, but they love bite-sized crayfish and will eat them if they can catch them.

Bluegill

Northern crayfish

When threatened, crayfish propel themselves backward with a flip of their powerful tails. After the coast is clear, this crayfish will continue searching for lunch — decaying plants and animals, and little water critters, including other crayfish!



Where the water lilies rise from the mud, a knobby old snapping turtle strikes at a passing bluegill. The turtle is usually too slow to catch fish in the water, but that doesn't stop it from trying. Missouri's common snapping turtles eat

insects, crayfish, fish, snails, earthworms, frogs, snakes, small mammals, and birds. However, they also eat lots of water plants like — you guessed it — water lilies.

Common snapping turtle

Do you have a favorite pond?

You can find lots of public ponds to visit at mdc.mo.gov/atlas.



WAR BIRDS

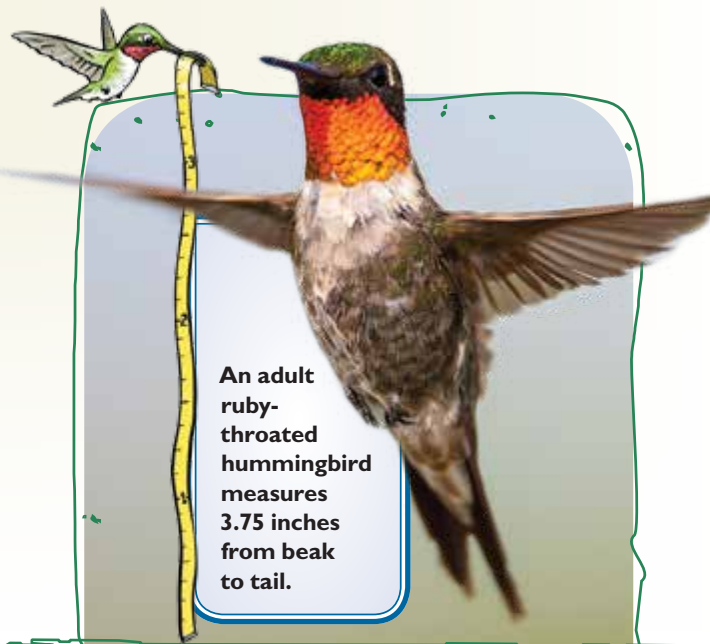
by Matt Seek
art by Mark Raithel

Ounce for ounce, ruby-throated hummingbirds are the fiercest creatures in Missouri.

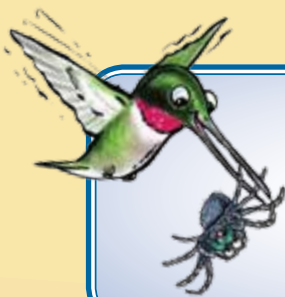
Sure, their itty-bitty bodies and their knack for zipping into view make them seem like a cross between a bumblebee and Tinker Bell. True, their wings do purr like an expensive sports car. And, yes, their shiny feathers sparkle in the sunlight as if they were coated with emeralds and rubies. Oh, all right, hummingbirds are adorable.

But ... watch what happens when two hummers arrive at the same feeder. Without fail, one of them will fly into a sputtering, squeaking, feather-ruffling rage, charge beak-first at the other hummer, and chase it away from the feeder.

There's a reason hummingbirds act like big bullies: Their lives depend on it.



An adult ruby-throated hummingbird measures 3.75 inches from beak to tail.



Although nectar provides lots of energy, hummingbirds also need protein, fat, vitamins, and minerals. Hummers get these by eating insects and spiders.



KellyNelson/Shutterstock.com

SUGAR RAGE

Missouri's smallest bird flaps its wings at blinding speeds — on average, about 50 times each second. This helps hummers fly forward, backward, up, down, and sideways. It lets them streak in at full speed and come to a dead stop in the blink of an eye. And it allows them to hover precisely in place, which helps when they're trying to stick their beaks into the tiny target of a flower's petals. But all that flapping comes at a cost.

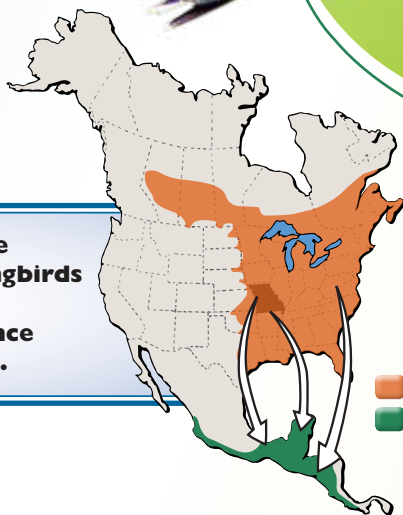


A hummingbird's wings normally flap about 50 times a second, but during high-speed maneuvers they can flap 200 times a second.

Hummingbirds burn energy faster than any warm-blooded animal. To keep their wings revved up, they must eat half their weight in sugar every day. (You'd have to drink more than 450 cans of soda to keep up.) Hummingbirds risk death if they go eight hours without food, and in extreme cases have been known to starve in two hours. So, when a hummer finds a good source of sugar — such as a feeder or a field of flowers — it doesn't like to share.

BUZZ OFF!

Hummingbirds don't live in Missouri all year. When flowers disappear in the fall, the little birds buzz off to spend winter in Central America. Males leave first — often in early August — then females, and then the young born that year. People usually see more ruby-throats in late summer than at any other time. This is because hungry hummers linger longer at flowers and feeders to pack on fat for migration. Some hummingbirds double their weight before undertaking long flights.



During migration, some ruby-throated hummingbirds fly nonstop across the Gulf of Mexico, a distance of more than 500 miles.

orange summer
green winter



From sunrise to sunset, a hummingbird usually eats every 10 minutes and may visit nearly 1,000 flowers.



When it comes to protecting her babies, a mother hummer is a force to be reckoned with. Moms have been seen fighting off much larger birds, such as blue jays, crows, and even hawks.

TOUGH MAMAS

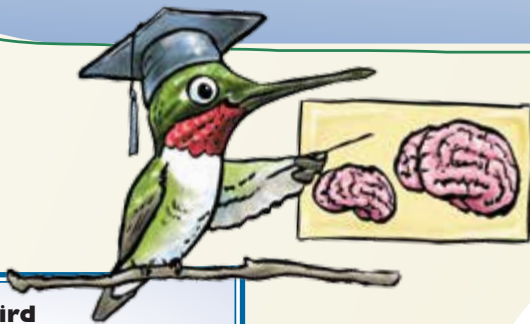
It takes tons of work to raise a hummingbird family, and mama hummers do it without any help from dad. A mother hummingbird begins by building a cozy, cup-shaped nest. To make the nest soft and warm, she pads the inside with cattail and dandelion fluff. To anchor the nest to a branch and hold the whole thing together, she plucks silk from spider webs. To hide the nest from predators, she camouflages it with moss and lichens. Once the nest is finished, she lays two raisin-sized eggs inside.

When the babies hatch, they are blind, naked, and helpless. They can't keep themselves warm, so mom spends most of her time sitting on them. Several times an hour, mom zips off to gather food. When she returns, she sticks her beak deep into the mouth of each baby and throws up nectar and insects for the babies to eat.



RUNNING ON EMPTY

Hummingbirds don't have much fat. If they did, they'd be too heavy to hover. But with little insulation, cold nights spell trouble. To survive, hummers go into **torpor**, a condition in which the bird's body slows down to save energy. The hummer breathes just a few times a minute, and its temperature drops nearly 50 degrees. To you and me, the bird appears to be dead. In the morning, once the sun has warmed its tiny body, the hummer wakes up and zips off to refuel.



If a hummingbird were human-sized, its brain would be twice as big as yours.



As the babies grow, they stretch out the sides of their nest. Young hummers are born knowing how to fly. They perch on the edge of the nest and practice fluttering their wings to make short takeoffs and landings. When the young hummers are a month old, mom kicks them out of the house, and they buzz off to become fierce, feisty, and fearless war birds.



THIS
ISSUE:

BADGER VS PRAIRIE VOLE

Illustrated by David Besenger

Built for Burrowing

Strong legs and long claws can dig faster than burrowing prey.

Sniffs for Supper

A keen sense of smell helps find prey in the dark.

What Big Teeth!

The better to catch and eat you with, my dear!

Tunnel Travelers

Voles make maze-like runways above and below ground to find food, escape predators, and connect their burrows. They also run fast, up to 6 miles per hour

AND THE WINNER IS...

The badger wins. Single voles don't often escape fast-digging badgers, but mating voles can produce up to 12 litters a year, which helps their big colonies last over time.

STRANGE but TRUE!

YOUR GUIDE TO ALL THE
UNUSUAL, UNIQUE,
AND **UNBELIEVABLE** STUFF
THAT GOES ON IN NATURE

Female **AMERICAN EELS** spend most of their lives in rivers. But when it's time for them to become mama eels, they swim thousands of miles downstream and into the open ocean to have their babies in the waters near Bermuda.



To escape from dogs and other predators, **SPOTTED SKUNKS** scamper up trees. It's best not to mistake these bushy-tailed skunks for a bushy-tailed squirrel. A spotted skunk can spray as well — and smell as bad — as their larger cousin, the striped skunk.



Mama **SHARP-SHINNED HAWKS** are bigger than daddy hawks, and their larger size helps them catch bigger prey. As a result, baby sharp-shins are fed first by their dads. But as the babies grow, and their appetites increase, mom takes over feeding duty.



TIGER BEETLES are one of the fastest animals on Earth.

To catch prey, the six-legged speedsters boogie along at a blistering 125 body lengths per second. If the beetles were human-sized, they could run more than 200 miles per hour!



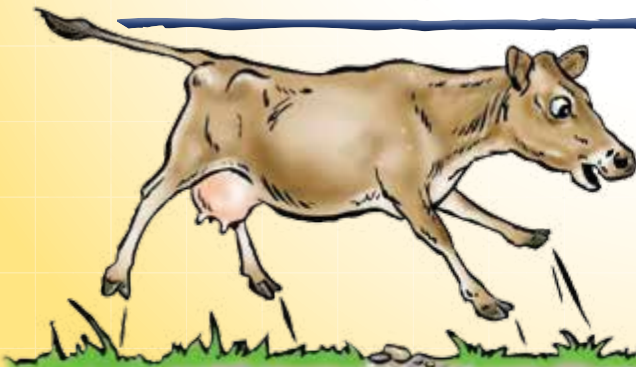
Many animals eat plants. **BLADDERWORT** eats animals. The floating plant is covered with air-filled bladders. Each bladder has a trap door. When a teeny tadpole or insect swims by, the trap door opens, water rushes in, and the victim is sucked inside.



A **TOAD'S** skin won't give you warts, but it can ooze poison. The poison isn't strong enough to hurt people, but if a dog or cat chews on a toad, the toxin can make them sick.



KILLDEER build their nests on the ground, often in grassy pastures. To keep cows and horses from trampling their eggs, the little birds fluff up their feathers, spread out their tails, and charge the hooved creatures, hoping to scare them away.



HOW TO

Train a Hummingbird to Perch on Your Finger

Ruby-throated hummingbirds may be Missouri's tiniest bird, but they're also fearless. With a little patience, you can coax one of the bold birds to perch on your finger.

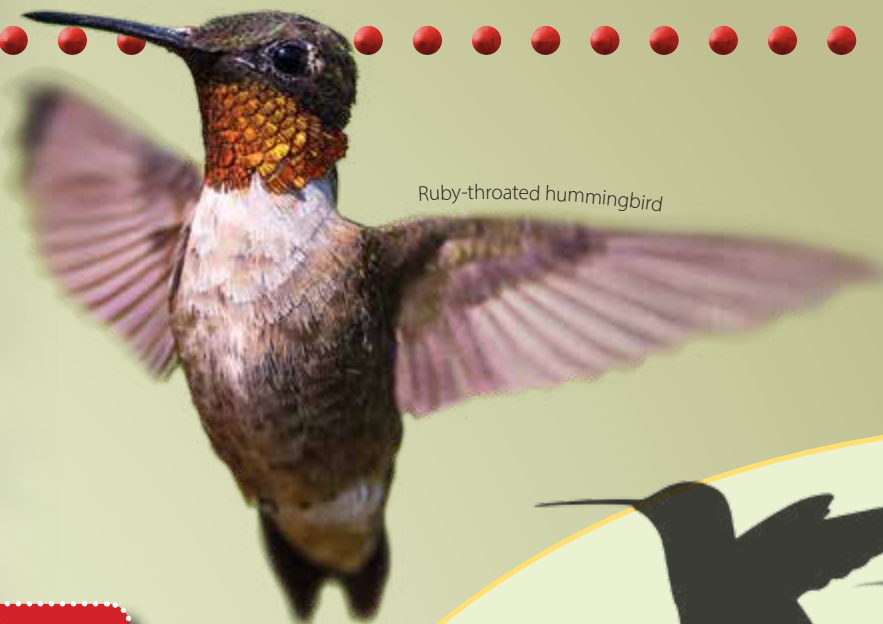
GATHER THESE SUPPLIES

- Small jar with a metal, screw-on lid (baby-food jars work great)
- Hammer and small nail
- Red and yellow paint
- Paintbrush
- Cord
- Scissors
- 1 cup sugar
- 4 cups water
- Medium-sized saucepan
- A little patience



MAKE A HUMMINGBIRD FEEDER

1. Remove any labels from the jar. Wash and dry the jar and lid.
2. Use a hammer and nail to punch a $\frac{1}{8}$ -inch-wide hole between the center and the edge of the lid. Hammer down the sharp metal points around the hole on the inside of the lid.
3. Paint the lid red. Once it dries, paint a small yellow flower around the nail hole.
4. Tie a length of cord tightly around the neck of the jar.
5. Fill the jar almost full with hummingbird nectar and screw on the lid.
6. Hang the feeder where you can see and reach it easily, but make sure it's out of the sun and wind.



Ruby-throated hummingbird

TRAIN A HUMMER TO PERCH ON YOUR FINGER

Keep your feeder well-stocked with nectar. Once hummingbirds are using the feeder a lot, begin sitting quietly beside it. Try to hold still, but if you must move, move slowly. When the birds no longer seem bothered by your presence, hold a finger close to the feeder as if your finger were a perch. With a steady hand, a little luck, and lots of patience, you can convince a hummingbird to buzz in and sit on your finger.

HUMMINGBIRD TIPS

It helps to put up more than one feeder. If you have just one, a feisty hummer may chase other birds away. But it can't defend two or three feeders at a time, especially if they are spread out in different locations.

Leave your feeder up until November. This helps hummers that live north of Missouri catch a quick snack when they migrate south. Leaving a feeder up won't cause hummingbirds to stay too long and freeze during winter.

To make your yard more attractive to hummingbirds, consider planting native flowers such as wild bergamot, cardinal flower, columbine, and trumpet creeper. See what these flowers look like at mdc.mo.gov/field-guide.

MIX UP SOME NECTAR

Fill a pan with 4 cups of water. Pour in 1 cup of sugar and stir the mixture until the sugar dissolves. Ask an adult to help you boil the mixture. (Boiling will keep the nectar fresh longer.) Let the nectar cool before filling your feeder. Store leftovers in the refrigerator. You don't need to add red food coloring to the nectar. As long as part of the feeder is red, hummingbirds will arrive in swarms.

NEVER USE HONEY TO MAKE NECTAR.

A fungus that attacks hummingbirds' tongues can grow in nectar made with honey.

Wash your feeder and refill it with fresh nectar every three days. Nectar can spoil — especially during hot weather — and make your hummingbird neighbors terribly sick.

XPLOR MOR

Snakes vs. Rodents

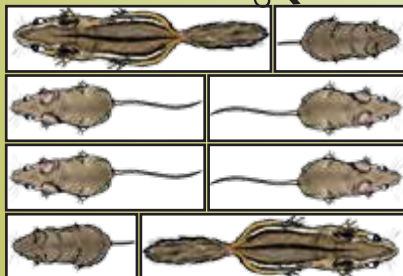
Snakes hunt prey in several ways. Sometimes, snakes coil in hidden locations and wait for mice to scamper into striking range. Snakes also use their sensitive tongues to taste the air and track the scent of voles through the grass. And, snakes slither into burrows hoping to catch chipmunks by surprise.

Pretend you're a hungry snake. Do you have what it takes to find supper?

Setting Up the Game

Cut out the rodents and game boards. Fold both game boards into an "L." Divide the rodents so that each player has one chipmunk, one vole, and two mice. Place a loop of tape on the underside of each rodent.

Eastern chipmunk



Prairie vole

Deer mouse

Deer mouse

Deer mouse

Deer mouse

Prairie vole

Eastern chipmunk

How to Win

The game is over when one player has eaten all of the other player's rodents.

WHAT IS IT?

— FROM PAGE 3 —

The prairie ring-necked snake looks harmless, but disturb it, and the little gray snake with a gold ring around its neck will flip over to show its caution-yellow belly and coil its alarming red tail. This trick makes it seem bigger and scarier than it really is, bluffing predators into backing off. Ring-necked snakes live under rocks, where they eat worms and other small prey, mostly at night.





Eastern chipmunk

Rules

Players begin by secretly sticking their rodents vertically or horizontally onto their game board's bottom grid.

Let your opponent take the first turn. He or she calls out a coordinate, for example "C3." You look at the bottom half of your game board, find "C" on the top row, and move down 3 squares. If a rodent is occupying that square, you say "strike" and draw an "X" on the square. If a rodent isn't there, say "miss" and draw an "O." When it's your turn, use the top half of your game board to keep track of strikes and misses.

Take turns calling out one coordinate per turn. If all the squares on a rodent have an "X" on them, the rodent has been swallowed. The rodent's owner must say which rodent was eaten, for example, "You ate my deer mouse."

	A	B	C	D	E	F	G	H	I
1									
2									
3									
4									
5									
6									
7									
8									
9									
	A	B	C	D	E	F	G	H	I
1									
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3									
4									
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6									
7									
8									
9									

Use the top grid to mark
your strikes and misses.

FOLD
HERE

Use the bottom grid to place your rodents
and mark your opponent's strikes and misses.

	A	B	C	D	E	F	G	H	I
1									
2									
3									
4									
5									
6									
7									
8									
9									
	A	B	C	D	E	F	G	H	I
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FREE TO MISSOURI HOUSEHOLDS

CRITTER CORNER

Bumblebee



This bumblebee is busy eating nectar and collecting pollen to feed her hive. Bumblebees make honey, but unlike European honeybees, they don't stockpile much of it. That's because they don't overwinter as a hive. In the fall, a single fertilized queen bumblebee hibernates in the ground. Missouri has at least six kinds of native bumblebees, and they all help pollinate our food crops and wildflowers.